

Att'y Ref. No. 003-089

U.S. App. No.: 10/676,087

**REMARKS**

Favorable reconsideration, reexamination, and allowance of the present patent application are respectfully requested in view of the foregoing amendments and the following remarks.

**Withdrawal of Claims**

Applicant acknowledges the withdrawal of Claims 7, 9, 11, and 13 from consideration at this time, pursuant to the Restriction / Election requirement in the Office Action dated 23 July 2004.

**Information Disclosure Statement (IDS)**

With reference to the Amendment filed 11 February 2005, Applicant then acknowledged receipt with the Office Action of a copy of a partially-examiner-initialed form PTO-1449 from the IDS filed 29 June 2004. The current Office Action, however, has not responded to this issue. Applicant has reviewed the Image File Wrapper (IFW) for this application, and has confirmed that: the form PTO-1449 does not indicate that the EPO Search Report has been considered; and the EPO Search Report is of record in the IFW (pages 6-8 of the document entitled "Information Disclosure Statement (IDS) File", dated 29 June 2004). Applicant again respectfully requests that the Search Report be considered, the form PTO-1449 fully initialed, and a copy of the fully-examiner-initialed PTO-1449 returned to Applicant.

**Rejection under 35 U.S.C. § 102**

In the Office Action, beginning at page 2, Claims 1-4, 10, 12, and 14-20 were rejected under 35 U.S.C. § 102(e) as reciting subject matters that are allegedly identically disclosed in U.S. Patent No. 6,733,234, issued to Paprotna et al. ("Paprotna"). Applicant respectfully requests reconsideration of these rejections.

The present application describes numerous seal assemblies embodying principles of the present invention. With reference to the elected species illustrated in Figs. 1-4, a seal 5 is positioned between a casing 4 and a combustion chamber 1 and spans a pair of combustor liner

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segments 2. Recognizing that the temperature gradient from the cold side B to the hot side A can be quite significant, thus imperiling the stability of the seals 5, the inventors herein developed a seal assembly that can perform in such harsh conditions. A laminated connector plate 8 is connected to one or more spring side supports 7, and the plate 8 includes a number of layers. A thermal insulation layer 10 is sandwiched or otherwise located between an inner, e.g., cold side, band 9 and an outer, e.g., hot side, band 11. Optionally, cooling holes, e.g., holes 13, can be provided so that cooling fluid (e.g., air) can be forced or drawn through the seal 5.

Claim 1 relates to a seal assembly including a combination of elements including, *inter alia*, a layered structure including a first layer of a base material, a second layer of thermal insulating material on top of the first layer, a third layer of a base material on top of the layer of thermal insulation, and a spring side support.

Claim 14 relates to a seal assembly having a combination of elements including, a layered structure including a first layer of a base material, a second layer of thermal insulating material on top of the first layer, and a third layer of a base material on top of the layer of thermal insulation; combustor liner segments; and a combustor liner seal between the combustor liner segments, said combustor liner seal comprising said layered structure.

The prior art, including *Paprotna*, fails to disclose each and every element recited in the combinations of the pending claims.

*Paprotna* describes a turbine seal assembly. With reference to Fig. 1 a pair of first and second turbine members 10, 12 are separated by a gap 13 which leads to a pair of recesses 14, 20. A shim 26, having a first leg 32 which bears against a bottom 18 of the recess 14, and having a second leg 34 which bears against a bottom 24 of the recess 20, is biased against the bottom surfaces 18, 24 of the recesses by a top spring 38. In order to reduce wear on the fragile shim 26, *Paprotna* proposes the addition of a shim protection material 46, positioned between the bottom surface of the shim 26 and the bottom surface of the recesses. According to *Paprotna*, this shim protection material can include a pair of layers 48, 50:

Accordingly, another component of the seal assembly of the present invention is shim protection material 46. Not only may the shim protection material 46 provide a

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more durable wear surface to contact the turbine components 10, 12, but the shim protection material 46 may also provide secondary leakage resistance. The shim protection material 46 preferably includes flexible interwoven fibers that can be made of metals, composites, ceramics or some combination of the three. The preferred material is metal.

The shim protection material 46 may include a single layer as shown in FIG. 2, or the shim protection material 46 may include multiple layers as shown in FIGS. 1 and 3. In the case of a single layer, it is generally preferred that the fibers are oriented in a single direction, preferably 45 degrees with respect to the longitudinal direction of the shim 26. In the case of multiple layers, it is preferred that, between layers, the fibers are alternately oriented. For example, the fibers of a first layer 48 may be oriented at 45 degrees whereas the fibers of an adjacent layer 50 would be oriented at 135 degrees. Moreover, the material compositions of each of the two layers can be identical or they can be different relative to one another. *The shim protection material 46 can be anything so long as it protects the shim from contacting the turbine members, provides a more durable wear surface, provides secondary leakage resistance, and can withstand the operational environment of a gas turbine.*

(*Paprotna*, column 3, line 54 to column 4, line 13) (emphasis added)

Notably absent from *Paprotna*'s discussion of this construction is any mention or discussion of a layered structure including a first layer of a base material, a second layer of thermal insulating material on top of the first layer, a third layer of a base material on top of the layer of thermal insulation. Instead, *Paprotna* indicates that the layers 48 and 50 are fibrous wear resistant layers, and have no thermal insulating properties.

Thus, *Paprotna* fails to describe each and every element recited in the combinations of the pending claims. More specifically, *Paprotna* fails to disclose or describe, in combination with other features recited in the pending claims, a layered structure and a spring side support, with the layered structure connected on two sides to the spring side support. Indeed, *Paprotna* fails to describe a layered structure including a thermal insulating layer at all, and therefore fails to describe such a layered structure in combinations such as those recited in the pending claims. Accordingly, *Paprotna* fails to anticipate the subject matters of Claims 1 and 14 *et seq.*

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claims 1-4, 10, 12, and 14-20 are not anticipated by *Paprotna*, are therefore not unpatentable under 35 U.S.C. § 102, and therefore respectfully requests withdrawal of the rejection thereof

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under 35 U.S.C. § 102.

**Rejection under 35 U.S.C. § 103**

At page 3 of the Office Action, Claims 5, 6, 8, and 18 were rejected under 35 U.S.C. § 103(a) as reciting subject matters that are allegedly obvious, and therefore allegedly unpatentable, over *Paprotna* in view of *Kalkbrenner*. Applicant respectfully requests reconsideration of these rejections.

*Kalkbrenner* fails to make up for the deficiencies of *Paprotna* with respect to the pending claims. Stated somewhat differently, assuming *arguendo* that one of ordinary skill in the art could find motivation to combine the devices of *Paprotna* and *Kalkbrenner* in the manner alleged to be obvious in the Office Action, the resulting hypothetical construct would still not include each and every element as recited in the combinations of the pending claims. As discussed in some depth in the 11 February Amendment, *Kalkbrenner* fails to describe, *inter alia*, any thermal insulating layer, much less a layered structure as recited in the pending claims.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claims 5, 6, 8, and 18, each taken as a whole, would not have been obvious to one of ordinary skill in the art at the time of Applicant's invention, are therefore not unpatentable under 35 U.S.C. § 103(a), and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 103(a).

**Conclusion**

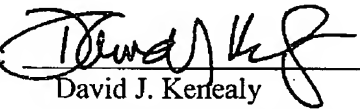
Applicant respectfully submits that the present patent application is in condition for allowance. An early indication of the allowability of this patent application is therefore respectfully solicited.

If examiner Patel believes that a telephone conference with the undersigned would expedite passage of this patent application to issue, they are invited to call on the number below.

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It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. If, however, additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and the Commissioner is hereby authorized to charge fees necessitated by this paper, and to credit all refunds and overpayments, to our Deposit Account 50-2821.

Respectfully submitted,

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